EPA

JOHN TROTTER SITE
SANGAMO PCB STUDY
PICKENS COUNTY, SOUTH CAROLINA
PROJECT NO. 87-032

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INTRODUCTION

An investigation was conducted on October 28, 1986 at the John Trotter Site in Pickens County, South Carolina (Figures 1 and 2), by Messrs. Hugh Vick and Keith Bellville and Mrs. Barbara Benoy of the US-EPA, Region IV, Environmental Services Division (ESD) and Messrs. Robert Morris and Scott Gardner, US-EPA, Region IV, Waste Management Division. Messrs. John Fields, Jr. and Dan Madison, consultants for Sangamo were also present during the investigation. This study was part of a larger study conducted in the Pickens County area involving alleged former Sangamo Electric Company PCB dump sites.

The objectives of this investigation were to determine if PCB waste materials were present at the site, and if so, if PCBs had migrated into area streams or ground water.

SITE DESCRIPTION

The size of the actual dump site on the John Trotter Property is unknown. The presence of the dump was discovered by Mr. John Trotter while he was using a bulldozer to construct a parking area in a low marshy area behind his machine shop (graveled area on Figure 2). According to Mr. Trotter, while making an earth cut to gain access to the proposed parking area, he noticed signs of capacitor and transformer waste in the cut bank he created along the driveway leading to his old home site. Mr. Trotter's mother still occupies this home site. The extent of waste material under and south of this driveway is unknown.

SAMPLING

Eleven samples (two surface water, two stream sediment, and seven soil) were collected at this site. Sampling locations are described in Table 1 and their locations are shown on Figure 2. Analytical data are summarized on Table 2 (Water Samples) and Table 3 (Sediment/Soil Samples). Complete analytical data are included as Appendix A. It was not possible to collect any ground water samples at this site. All of the residents in the area are connected to city water. One deep potable water supply well was present at the old Trotter home site (Figure 2). However, this well had been abandoned for seven to eight years and the in-place submersible pump was inoperable. Mr. Trotter refused to remove the pump so that samples could be collected.

SUMMARY

Neither the water nor the sediment sample collected from the unnamed stream upstream of this site contained any PCB's, other organic compounds or cyanide. Metals concentrations in these samples were all low.

The water sample collected downstream of this site did not contain any PCB's and only contained one other organic compound (carbon disulfide at an estimated concentration of 12 ug/l). However, the downstream sediment sample contained PCB-1248 (54 ug/kg) and three siloxanes at a total estimated concentration of 400 ug/kg. Neither of these samples contained any cyanide and most of the metals concentrations were lower than those in the upstream samples.

PCB's were detected in six of the seven soil samples including the control soil sample (55 ug/kg). PCB concentrations in three of the other soil samples ranged from 0.77 to 0.9 ug/kg. However, concentrations in the other two soil samples were 87,000 ug/kg and 2,100,000 ug/kg. The latter concentration was for the sample (JT-10S)collected from the cut bank along the driveway leading to the old Trotter home site.

RESULTS AND DISCUSSION

Surface Water and Sediment Samples - Unnamed Stream

Water and sediment samples were collected from both upstream and downstream locations on the unnamed stream (Figure 2) flowing past the site in order to determine if PCB's were migrating into the stream from the site. These samples were also analyzed for metals, cyanide, extractable organic compounds and purgeable organic compounds.

The upstream water (JT-01W) and sediment (JT-02S) samples did not contain any PCB's, organic compounds, or cyanide. Eight metals were detected in the water sample while fourteen were detected in the sediment sample, all at low concentrations.

The downstream water sample (JT-03W) did not contain any PCB's. However, the downstream sediment sample (JT-04S) contained PCB-1248 at a concentration of 54 ug/kg. The only other organic compounds detected in these samples were carbon disulfide (estimated concentration of 12 ug/l in JT-03W and three siloxanes of a total estimated concentration of 400 ug/kg in JT-04S. Metals concentrations in these samples were usually below (approximately one half for sediment samples) those detected in the upstream samples. Cyanide was not detected in either of these samples.

Soil Samples

PCB's (arochlor 1248 and/or 1254) were detected in six of the seven soil samples collected at this site, including the control soil sample (JT-11S with Arochlor 1248 and 1254 at a combined estimated concentration of 55 ug/kg). PCB concentrations in three of the other five samples ranged from 0.077 to 0.9 ug/kg. However, the other two samples contained much higher concentrations of PCB's. Sample JT-07S contained 18,000 ug/kg of PCB-1254 and 69,000 ug/kg of PCB-1248, while sample JT-10S contained 2,100,000 ug/kg of PCB-1248. Analyses for all of the dioxins have been requested on samples JT-07S, JT-10S, and JT-11S. Results of these analyses will be transmitted under separate cover at a later date.

METHODOLOGY

All sampling and sample handling procedures were as prescribed in the Standard Operating Procedures of the Environmental Compliance Branch, ESD (1). All laboratory analyses were in accordance with the Standard Operating Procedures of the Analytical Support Branch (2).

REFERENCES

1. Engineering Support Branch, Standard Operating Procedures and Quality Assurance Manual, U. S. Environmental Protection Agency, Region IV, Environmental Services Division, April 1, 1986.

2. Analytical Support Branch, Operations and Quality Control Manual, U. S. Environmental Protection Agency, Region IV, Environmental Services Division, June 1, 1985.

TABLE 1
SAMPLING LOCATIONS
JOHN TROTTER SITE
SANGAMO PCB STUDY
PICKENS, SOUTH CAROLINA

Sampling Location Number	Sample Type and Location Description
JT-01W	Water sample from unnamed stream at Trotter Hill Road (upstream of site).
JT-02S	Sediment sample from same location as JT-01W.
JT-03W	Water sample from unnamed stream near old Trotter home site (downstream of site).
JT-04S	Sediment sample from same location as JT-03W.
JT-05S	Near surface soil from drainage of garden near northeastern toe of filled parking area, between the garden and the unnamed stream.
JT-06S	Near surface soil from drainage which leads from the southern edge of the filled parking area to the unnamed stream.
JT-07S	Soil sample (1 1/2-2 feet deep) from western edge of filled parking area along northern edge of entrance lane to the parking area.
JT-8S	Soil sample (1 1/2-2 feet deep) from southeastern portion of the filled parking area.
JT-09S	Soil sample (1 1/2-2 feet deep) from near the northeastern toe of the filled parking area.
JT-11S	Soil sample from cut bank created along driveway to the old Trotter home site during construction of the filled parking area.
JT-12S	Control soil sample (1 1/2-2 feet deep) from western side of Trotter Hill Road.

TABLE 2
ANALYTICAL DATA SUMMARY
WATER SAMPLES
TROTTER HILL ROAD SITE
PICKENS, SC

	JT-01W UPSTR DRAINAGE 10/28/86 0835	JT-03W DWNSTR DRAINAGE 10/28/86 0845
INORGANIC ELEMENT/COMPOUND	UG/L	UG/L
STRONTIUM	15	15
TITANIUM	29	28
ALUMINUM	1200	1100
MANGANESE	30	30
	MG/L	MG/L
CALCIUM	2.0	2.1
MAGNESIUM	1.1	1.1
IRON	0.78	0.66
SODIUM	1.9	2.3
PURGEABLE ORGANIC COMPOUNDS	UG/L	UG/L
CARBON DISULFIDE	--	12J

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FOOTNOTES
J - ESTIMATED VALUE
-- - MATERIAL WAS ANALYZED FOR BUT NOT DETECTED

TABLE 3
ANALYTICAL DATA SUMMARY
SEDIMENT/SOIL SAMPLES
TROTTER HILL ROAD SITE
PICKENS, SC

	JT-02S UPSTR DRAINAGE 10/28/86 0840	JT-04S DWNSTR DRAINAGE 10/28/86 0850	JT-05S GARDEN SOIL 10/28/86 0940	JT-06S SITE DRAINAGE 10/28/86 0945	JT-07S W. FILL AREA 10/28/86 1015	JT-08S S. FILL AREA 10/28/86 1020	JT-09S N. FILL AREA 10/28/86 1025	JT-10S DRIVEWAY BANK 10/28/86 1030	JT-11S CONTROL SOIL 10/28/86 1105
INORGANIC ELEMENT/COMPOUND	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
BARIUM	44	13	65	NA	NA	NA	NA	NA	NA
CHROMIUM	49	37	32	NA	NA	NA	NA	NA	NA
COPPER	12	4.2	17	NA	NA	NA	NA	NA	NA
NICKEL	10	2.6	8.7	NA	NA	NA	NA	NA	NA
LEAD	6.6	3.8	10	NA	NA	NA	NA	NA	NA
STRONTIUM	--	--	8.6	NA	NA	NA	NA	NA	NA
TITANIUM	680	240	570	NA	NA	NA	NA	NA	NA
VANADIUM	53	19	52	NA	NA	NA	NA	NA	NA
YTTRIUM	3.2	1.6	5.7	NA	NA	NA	NA	NA	NA
ZINC	22	7.2	24	NA	NA	NA	NA	NA	NA
MERCURY	0.05J	--	--	NA	NA	NA	NA	NA	NA
ALUMINUM	18000	5500	24000	NA	NA	NA	NA	NA	NA
MANGANESE	100	55	370	NA	NA	NA	NA	NA	NA
CALCIUM	--	100	1500	NA	NA	NA	NA	NA	NA
MAGNESIUM	940	370	880	NA	NA	NA	NA	NA	NA
IRON	14000	7500	20000	NA	NA	NA	NA	NA	NA
SELECTED CHLORINATED COMPOUNDS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
PCB-1254 (AROCLOR 1254)	--	--	--	260A	18000	300	--	--	26JN
PCB-1248 (AROCLOR 1248)	--	54	900JC	77A	69000	390	--	2100000	29JN
EXTRACTABLE ORGANIC COMPOUNDS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
2,4-DICHLOROPHENOL	--	--	2500	NA	NA	NA	NA	NA	NA
DECAMETHILCYCLOPENTASILOXANE	--	100JN	--	NA	NA	NA	NA	NA	NA
DODECAMETHILCYCLOHEXASILOXANE	--	200JN	--	NA	NA	NA	NA	NA	NA
OCTAMETHILCYCLOTETRASILOXANE	--	100JN	200JN	NA	NA	NA	NA	NA	NA
DICHLOROPHENOL (NOT 2,4)	--	--	200JN	NA	NA	NA	NA	NA	NA
HEXADECANOIC ACID	--	--	1000JN	NA	NA	NA	NA	NA	NA
PETROLEUM PRODUCT	--	--	N	NA	NA	NA	NA	NA	NA
PURGEABLE ORGANIC COMPOUNDS	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
1,1,1-TRICHLOROETHANE	--	--	3.1J	NA	NA	NA	NA	NA	NA
CONVENTIONAL PARAMETERS	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
CYANIDE	--	--	0.51	NA	NA	NA	NA	NA	NA

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FOOTNOTES

A - AVERAGE VALUE
NA - NOT ANALYZED
J - ESTIMATED VALUE
N - PRESUMPTIVE EVIDENCE OF PRESENCE OF MATERIAL
-- - MATERIAL WAS ANALYZED FOR BUT NOT DETECTED
C - CONFIRMED BY GC/MS

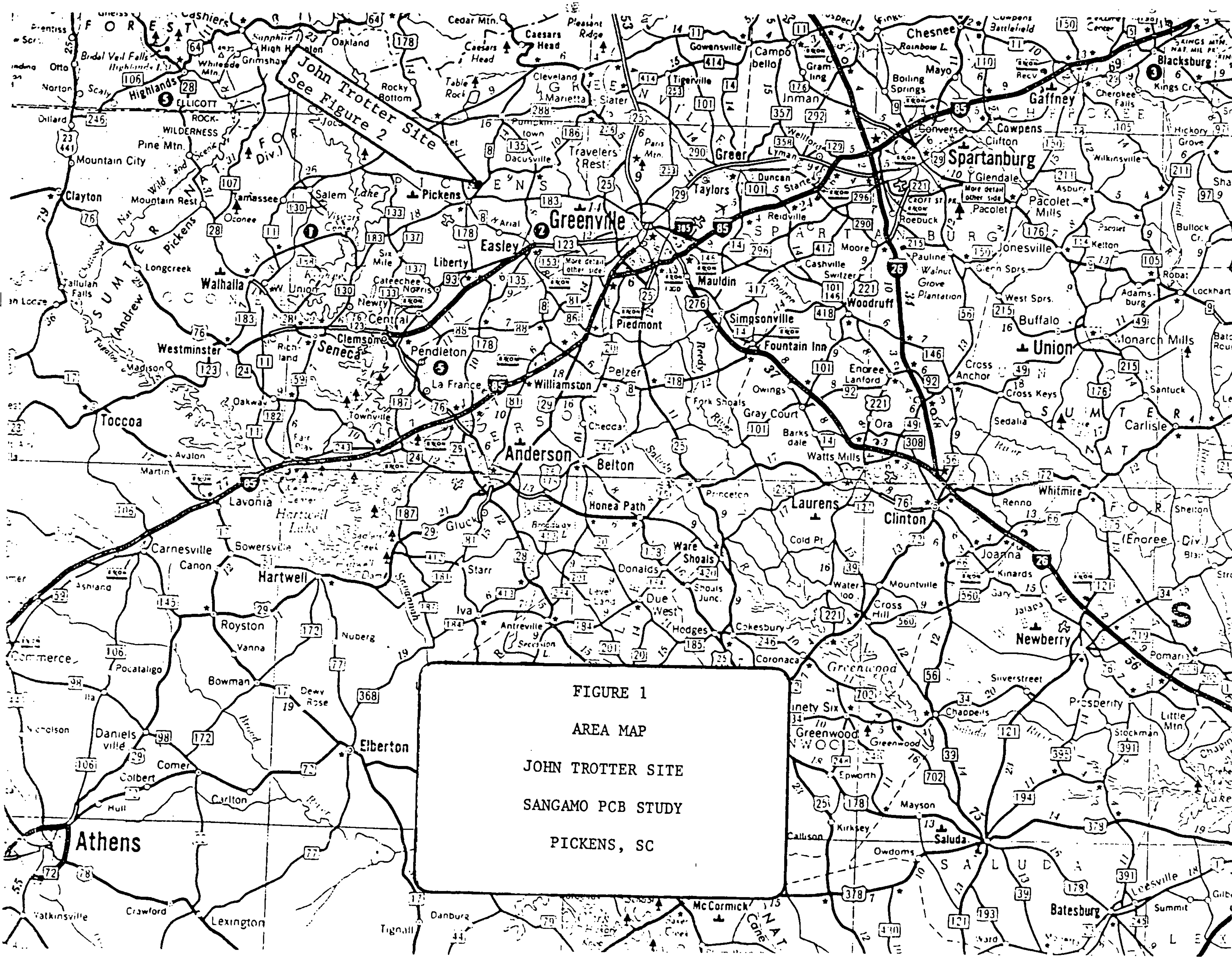

FIGURE 1

AREA MAP

JOHN TROTTER SITE

SANGAMO PCB STUDY

PICKENS, SC

FIGURE 2
JOHN TROTTER SITE
SKETCH(NTS)
PICKENS, SOUTH CAROLINA